

**IN THE DRAWINGS:**

Examiner approval of the attached Replacement Sheets, presenting formal drawings, is respectfully requested.

**REMARKS**

Claims 12-22 were considered in the Office Action mailed September 19, 2006. The following objections and rejections were entered:

- The drawings stand objected to for poor quality, for failure to show angles  $\alpha$  and  $\beta$ , and for use of a reference label 18 not described in the Specification.
- The Abstract stands objected to for use of the term “comprising.”
- Claim 18 stands objected to as being in improper dependent form for reciting a knife in lieu of the knife holder of its parent claim 12.
- Claims 12 and 15-16 stand rejected under 35 U.S.C. § 112, claim 12 for improper recitation of a “means” claim limitation, and claims 15-16 for antecedent basis issues.
- Claims 12-20 stand rejected under 35 U.S.C. § 103(a) as unpatentable over U.S. Patent No. 5,511,597 to Shantie, *et al.* (“Shantie”), in view of U.S. Patent No. 6,502,609 B1 to Guels (“Guels”).
- Claim 21 stands rejected under § 103(a) as unpatentable over Shantie and Guels, further in view of U.S. Reissue Patent No. Re. 36,659 to Toogood (“Toogood”).
- Claim 22 stands rejected under § 103(a) as unpatentable over Shantie and Guels, further in view of U.S. Patent Publication No. US 2003/0201029 A1 (“Robitaille”).

The following addresses each of these objections and rejections.

1. **The Drawing Objections Are Addressed:** With respect to description of reference label 18, the Examiner’s attention is respectfully drawn to the last line of paragraph [0047], which refers to “threaded bore 18 being visible in FIG 9.”

As to the angles  $\alpha$  and  $\beta$ , the Examiner’s attention is respectfully drawn to Figs. 2 and 3. as noted in Specification ¶ [0034], the angle  $\alpha$  is shown (and labeled as such) at the lower left of Fig. 2, near the knife blades’ meeting point

(contact areas 34), and the angle  $\beta$  is shown (and labeled as such) at the lower right of Fig. 3, again near the point where knife blades 5 and 7 meet.

Finally, the Applicant has attached hereto for Examiner approval formal drawings, denoted as Replacement Sheets.

In view of the foregoing, withdrawal of the pending drawing objections is respectfully requested.

2. **The Abstract Objection Has Been Addressed:** The Applicant has addressed the Abstract objection by replacing the term “comprising” with “including.” Reconsideration and withdrawal of the Abstract objection is respectfully requested.

3. **Claim 18 Has Been Placed Into Proper Form:** The Applicant has amended claim 18 into independent form, thereby rendering the pending objection moot.

4. **The § 112 Rejections Have Been Addressed:** The Applicant has amended claim 12 to delete the redundant words “knife fastening.” As amended, this claim 12 limitation recites “means for detachable mounting of the chipping knife and the slabbing knife on their respective mounting faces.” Claims 18 and 19 have been similarly amended

The antecedent basis issues in claims 15 and 16 have been addressed by amendment to refer to “an angle” in lieu of the previous “the angle.”

Reconsideration and withdrawal of the pending § 112 rejections is respectfully requested.

**5. The Claims Are Patentable Over Shantie and Guels:** The

Applicant respectfully traverses the rejections of claims 12-22 as unpatentable under § 103(a) over the combination of Shantie and Guels, *et al.*, on the grounds that no combination of Shantie and Guels would result in the present invention, and that there is no suggestion or motivation for the combination.

The present invention is directed to a blade holder, blade and blade tool head which utilizes a novel direct-mounting technique which greatly simplifies cutting tool design and maintenance (*e.g.*, providing rapid and easy mounting, with a highly repeatable position accuracy), and provides superior cutting performance by eliminating the generation of debris-clogging gaps between cutting blades as the cutting blades wear during use. *See, e.g.*, Specification ¶ [0010].

Specifically, as shown for example in present Fig. 1, chipping and slabbing knife blades 5, 7 utilized a unique *direct mounting* arrangement for mounting directly onto knife holder 2, which in turn is detachably fastened directly to the tool head via fasteners 12, 13. Further, the knife blades have edges which have complementary angles and meet at contact areas 34 in such a way that, as the knife blade cutting edges wear, the adjacent blades remain in contact, so that no debris-capturing gap forms between the edges, as was common in the prior art. *Id.* ¶¶ [0010], [0015], [0032]-[0038].

In pending claim 12, the direct-fastening feature of the present invention is recited in the last subparagraph: “the knife mounting means are *direct fastening means* which secure the chipping knife and the slabbing knife, each

having knife contact faces inclined in a V shape correspondingly, *directly on their respective mounting faces with a holding force acting between the contact faces inclined in a V shape.*” Claim 12 is directed to the inventive knife holder; new claim 23 has been added to recite a knife tool head with this feature and the above-noted non-gap-forming knife blade arrangements.

The Shantie and Guels references (the latter patent issued to the present Applicant) teach basically different techniques for mounting their knives on their respective tool heads. In the Guels patent, the knives are mounted using a so-called direct mounting technique, which comprises mounting the knife *directly*, *i.e.*, without using other removable or detachable holder plates or elements, onto the corresponding holder of the chipping tool head with a direct connection, such as a screw. Very differently, the Shantie reference uses a blade-clamping mechanism for supporting its knives, in which a separate, detachable component (wear plate 70) traps a knife blade against an underlying support element 46. Further, in order to provide for stable knife positioning, the Shantie top wear plate 70 has a knife-receiving protrusion of rectangular cross-section which cooperates with a corresponding groove in the knife to align the knife in a desired orientation. Thus, there is no direct fastening with the Shantie arrangements, and any screws used as fastening elements are provided *outside* the region of the clamped knife blade. In contrast, the Guels knife itself is directly fixed by a screw (3) to its holder.

One of ordinary skill in the art viewing the Shantie and Guels references would find no teaching or suggestion for the combination of these two different

knife holding mechanisms. Contrary to the assertion in the Office Action, the use of the V-groove arrangements would not be obvious because the present invention would not result. The V-shaped cross-sections of these surfaces are useful in the Guels arrangement because they help positioning the knife when *directly* mounted at the holder by corresponding fixing means. In contrast, Shantie teaches use of the clamping mechanism (the support element 46, wear plate 70 and offset fasteners ) for positioning the knife. Because the knife is held by being clamped between the support element and the wear plate, one skilled in the art would recognize that there would be no need to add the V-shaped contact faces of Guels for any reason. Instead, the exact position of the knife is defined in the Shantie system by the cooperation of the protrusion of the supporting element having rectangular cross-section with the equally shaped recess in the knife. Thus, there would be no motivation for combining Guels with Shantie's clamping arrangements; indeed, Shantie teaches one of ordinary skill that its top-clamp-to-knife support clamping and alignment mechanism is of central importance in the Shantie knife holder system (*see, e.g.*, all claims of Shantie), and there is nothing in either reference which suggests any reason to one skilled in the art to just replace this fundamental clamping mechanism with the Guels V-shaped contact faces.

Moreover, even if the Guels V-shaped knife blade contact surface were added to the Shantie knife holder, the resulting device would still be a clamping-type knife mounting arrangement, with separate top clamp plate (wear plate 70) required to hold the knife in position. This multi-part clamping system neither

teaches the direct-mounting system of the present invention, nor provides the present invention's rapid and easy knife replacement advantages. Thus, there is no suggestion or motivation for a combination that would not result in the present invention.

As a related matter, the Applicant respectfully disagrees with the assertion the present disclosure does not "positively recite any criticality to the selection of V-shaped cross-sections." The importance of these cross-sections is explicitly discussed in the present specification, for example, in Specification ¶ [0010]. Further, the applicant notes that the portion of the Specification quoted as supporting this assertion (¶ [0038]) is incomplete. Rather than merely stating that "instead of the V-shaped contact faces a different type of surface contact... may be provided," this section states: "In alternative embodiments, instead of the V-shaped contact faces, a different type of surface contact between the holder body 1 and the respective knife 5, 7 may be provided, retaining a direct fastening of a chipping knife and a slabbing knife on a one-piece holder body which is in turn attached directly to the knife hold tool head." This section makes clear the inter-dependence between the direct fastening approach and the V-shaped contact faces, which makes a critical contribution to the direct fastening mechanism (*i.e.*, the present application does not indicate that *any* surface may be readily used to obtain the present invention, but is makes clear that such surfaces are critical to the use of the recited direct fastening system. For its part, the Shantie non-direct fastening system (*i.e.*, separate, detachable - component clamping arrangements) do not provide the required direct fastening.

Accordingly, regardless of the configuration of the surface underlying the Shantie knife, no combination of the Guels V-groove with Shantie's clamping arrangement will result in claim 12's "knife mounting mean" which "are *direct fastening means* which secure the chipping knife and the slabbing knife, each having knife contact faces inclined in a V shape correspondingly, directly on their respective mounting faces *with a holding force acting between the contact faces inclined in a V shape* [*i.e.*, not between the upper and lower jaws of a clamping mechanism]."

As a separate grounds for allowance, the Applicant notes that claim 18 and new claim 23 recite a novel arrangement of the adjacent knives which eliminates the common problem in the prior art, requiring premature interruption of production line flow, of clogging of a gap between the adjacent blades which develops as the blades wear during use. Previously, adjacent chipping and slabbing knives traditionally had rectangular end faces, and were located at angles relative to one another, such that as their cutting edges wore, the tips of the edges receded away from one another, opening a debris-collecting gap. Claims 18 and 23 are direct to a solution to this long-standing, and un-met problem, reciting a knife and a tool head with corresponding knives, having a specifically shaped edge portion for making a specific linear or two- dimensional contact with an adjacent knife on the holder which ensures the adjacent edges remain in contact with one another as the edges wear. *See, e.g.*, Present Application Figs. 1 ,2 10, 11 (contact areas 34); ¶ [0035].

It is maintained in the pending Office Action at page 7 that Shantie



teaches knives 42, 110 with the recited edge configuration. The Applicants respectfully note that Shantie instead teaches the conventional art, *i.e.*, as shown in Shantie Fig. 2, the rectangular end of knife 42 near the slabbing knife 110 is *offset at an angle relative to the direction of tool rotation*, such that the knife edges diverge in the direction away from the point at which they meet at the leading edge 112. Thus, as these cutting edges wear, an ever-increasing gap will form between the adjacent cutting edges. Thus, because this feature of the present invention is neither taught nor suggested by either Shantie or Guels, claims 18 and 23 are patentable over these references.

Because Shantie and Guels do not teach or suggest all of the features of the present invention for which they are cited, and further because the Toogood and Robitaille references fail to cure Shantie's and Guels' deficiencies, the Applicant respectfully submits that claims 12-23 are patentable over these references under § 103(a).

### CONCLUSION

In view of the foregoing amendments and remarks, the Applicant submits that claims 12-23 are in condition for allowance. Early and favorable consideration, and issuance of a notice of allowance for these claims, is respectfully requested.


If there are any questions regarding this amendment or the application in general, a telephone call to the undersigned would be appreciated since this should expedite the prosecution of the application for all concerned.

If necessary to effect a timely response, this paper should be considered as

a petition for an Extension of Time sufficient to effect a timely response, and  
please charge any deficiency in fees or credit any overpayments to Deposit  
Account No. 05-1323 (Docket #101643.55963US).

Respectfully submitted,

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